

Obstetric Perspective- Elevated BMI and Maternal Outcomes

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University of Auckland
Annual report
2017



Size of the problem in NZ : 2015-16 Health Survey

- **NZ is 3rd most obese country in OECD in 2017**
- **32 % adults obese (BMI \geq 30)**
 - 46% Maori women obese
 - 64% Pacific women obese
 - 31% European obese
 - 16% Asian
- **Obesity \uparrow in high deprivation**
- **One in three NZ children overweight / obese**
- **44% Maori & 59% Pacific children overweight/ obese**



1 in 9 NZ children are obese

2 in 10 are overweight

BMI in women by ethnicity

- Median BMI for NZ adult women :
 - Pacific 34.3
 - Maori 30.9
 - European 27.9
 - Asian 25.4

NZ Health Survey data 2016

NZ BMI In Pregnancy Data 2015

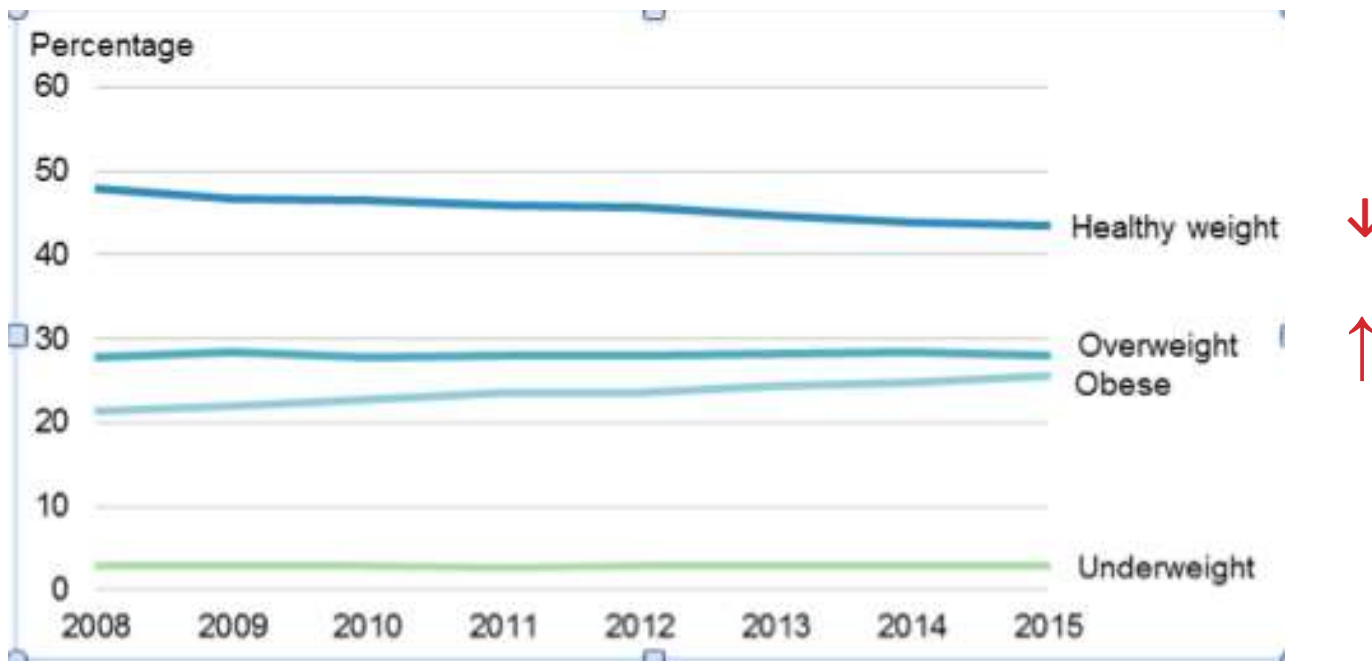
NZ data for BMI at booking

28% overweight

26% obese

30,240 women overweight or obese in pregnancy 2015

Reduction in normal BMI over time



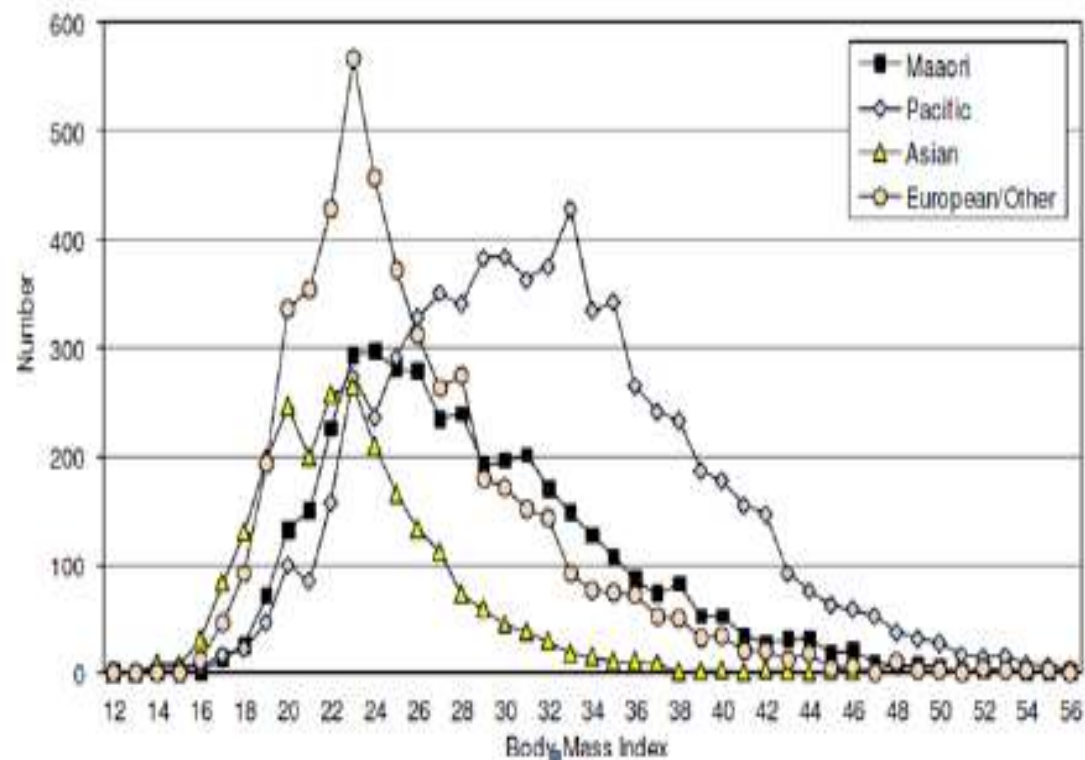
Ministry of Health. 2017. *Report on Maternity*, p 19,

2015

BMI in Pregnancy Counties Manukau Health - 2014

BMI ≥ 30 in births at a CMH facility

- 65% of Pacific
- 45% of Maori
- 26% of European



Counties Maternity Quality and Safety report 2014/2015

Jackson report 2012

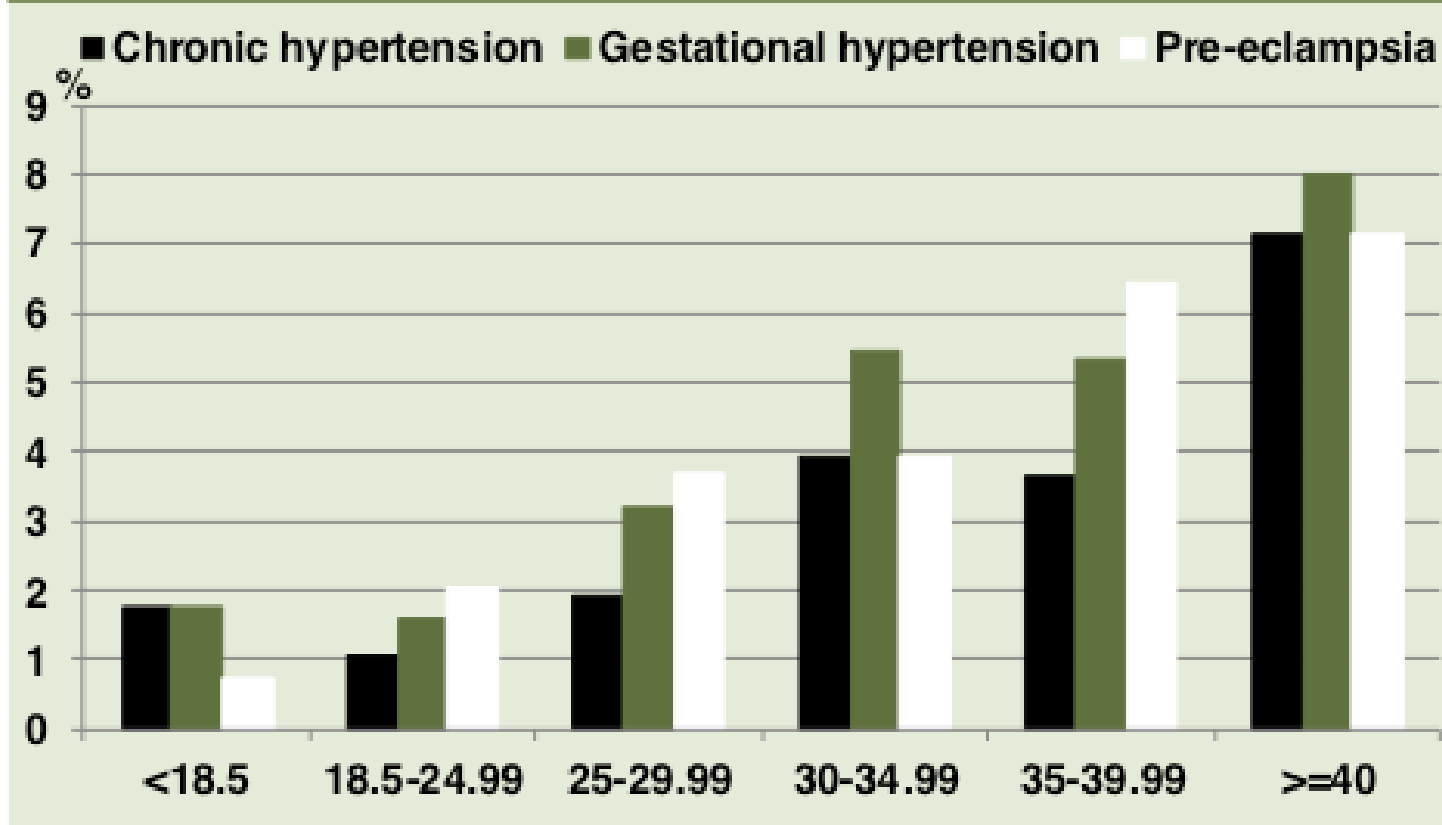
Pregnancy complications with BMI >30

	Relative Risk
▪ Miscarriage	2
▪ Preeclampsia	2-3
▪ Gestational diabetes	3-4
▪ Preterm birth	1.3-2
▪ SGA	1.25
▪ LGA	2
▪ Caesarean section	2
▪ Pulmonary embolism	2
▪ Postpartum haemorrhage	1.4
▪ Reduced breast feeding	0.6
▪ Depression	1.3



Hypertension by BMI ACR 2017

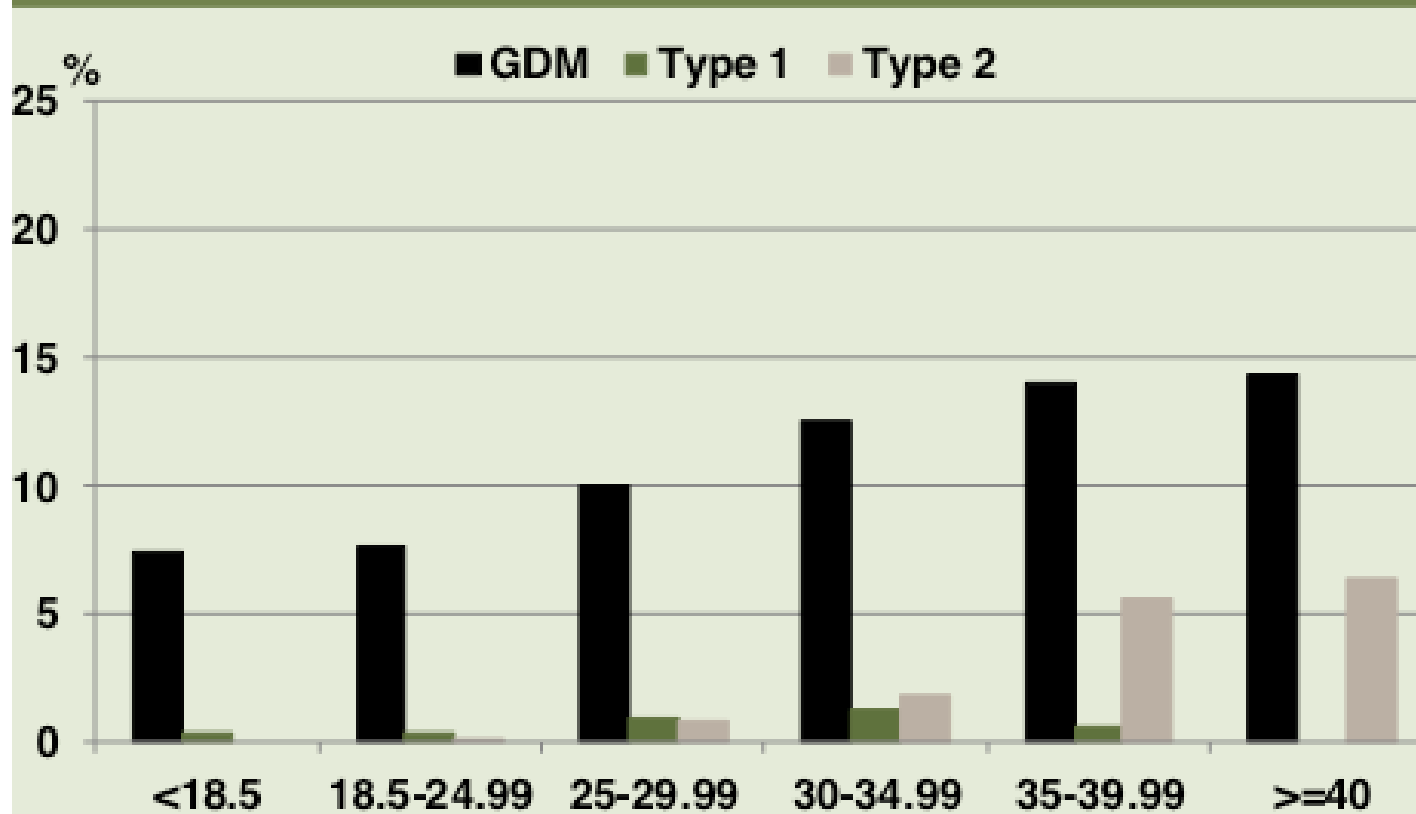
Figure 51: Hypertensive disease rates by maternal BMI NWH 2016 (Pre-eclampsia includes superimposed pre-eclampsia) (excludes missing data)



Dose dependent relationship between BMI & all HTD

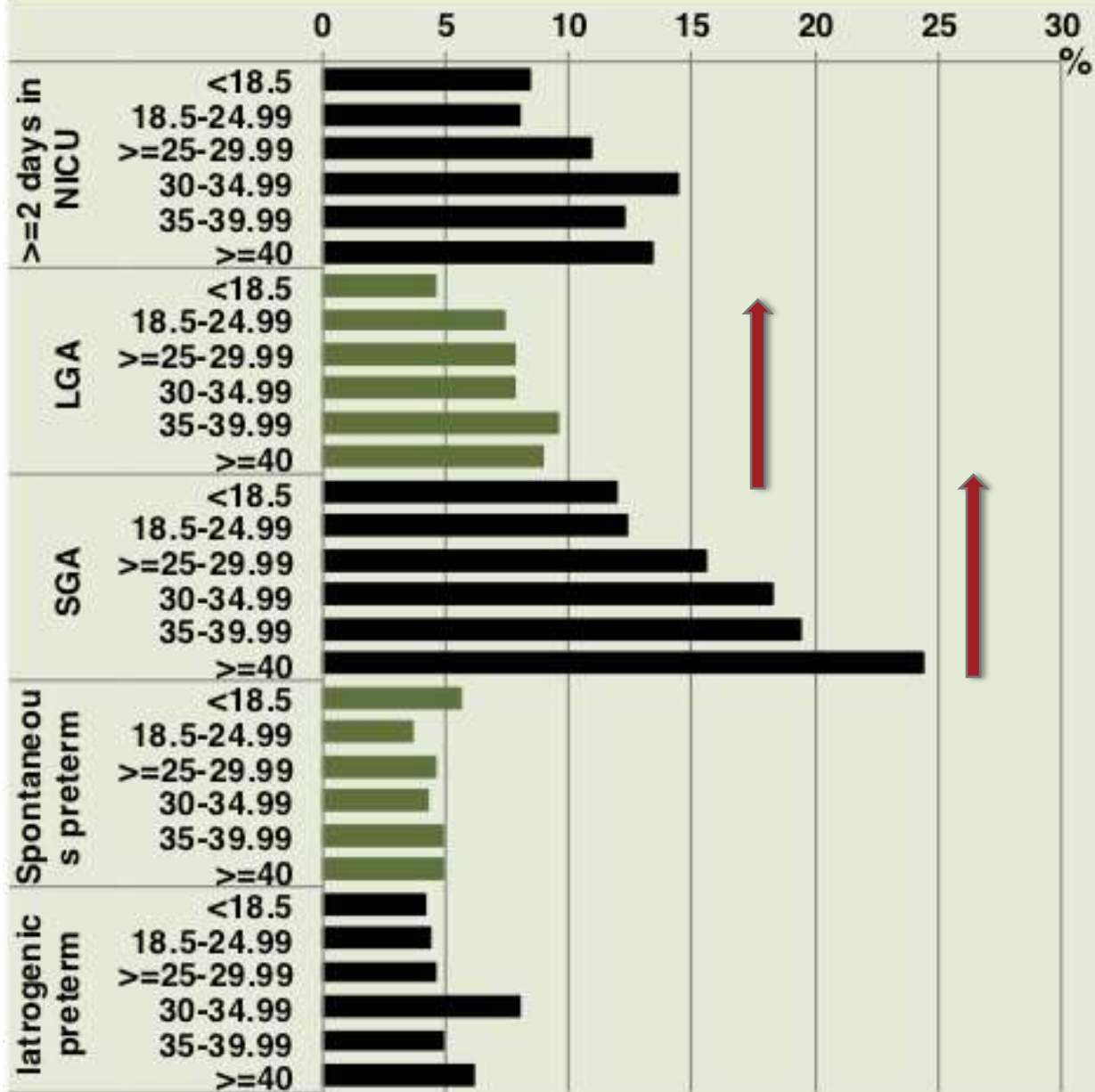
Diabetes by BMI ACR 2017

Figure 52: Diabetes rates by maternal BMI NWH 2016



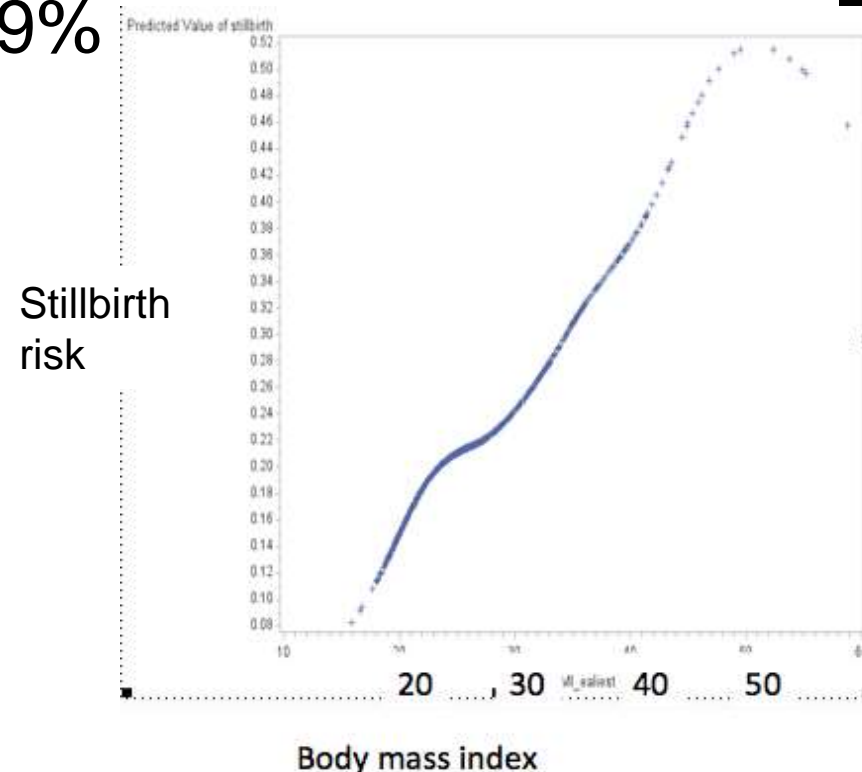
Dose dependent relationship between BMI & GDM & T2DM

Figure 55: Preterm birth and neonatal outcomes in relation to BMI NWH 2016

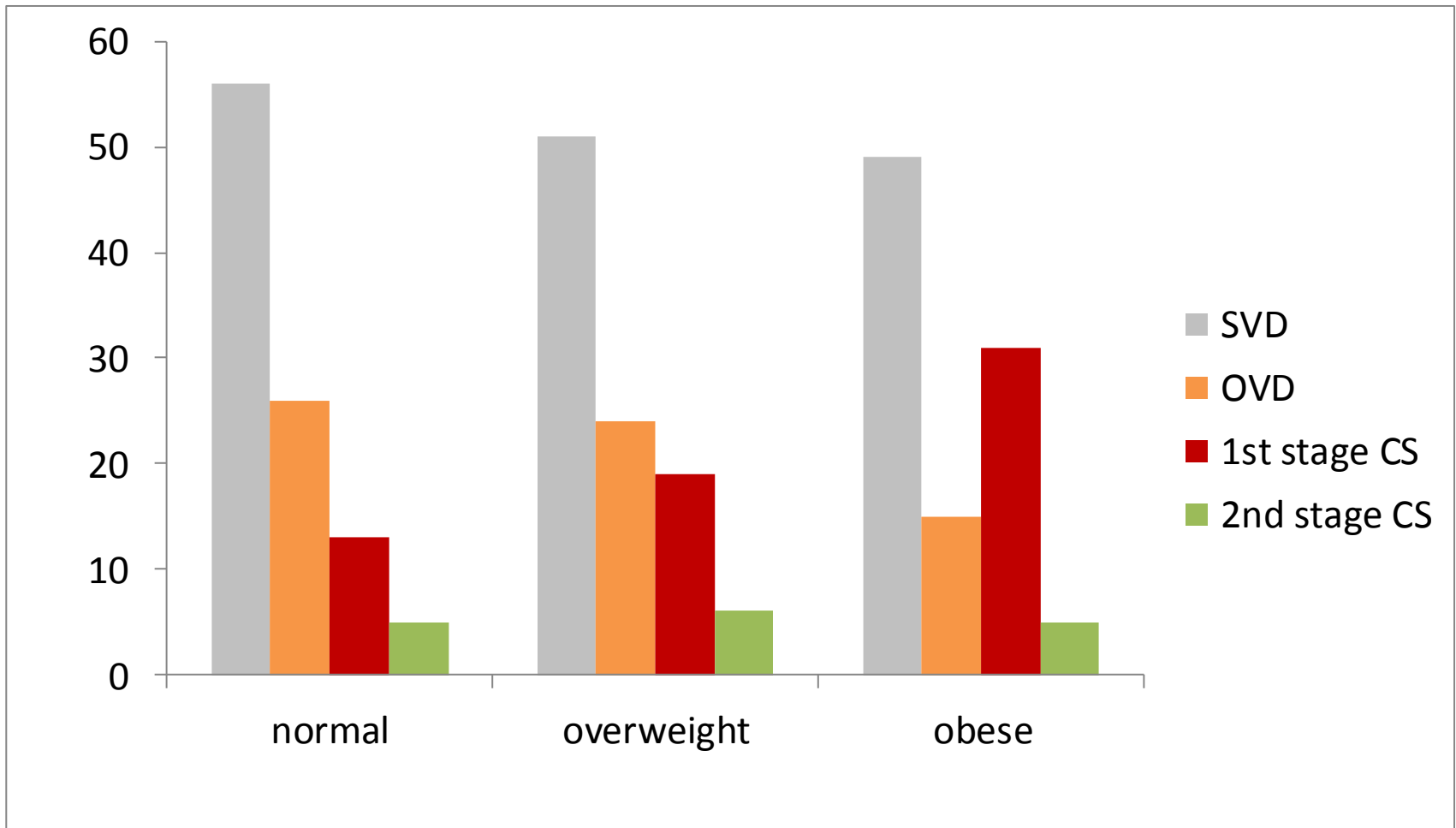


Late stillbirth & raised BMI

- 2-3 x ↑ stillbirth risk in BMI > 30
- dose dependent- 4% ↑ risk for each unit ↑ in BMI
- stillbirth rate ↑ at term
- PAR for late stillbirth in NZ 29%
- Multiple mechanisms



Mode Of Birth By BMI



Derived from Fyfe et al. *Obstet Gynecol* 2011;117(6):1315-22.

Major PPH after vaginal & Caesarean birth

Figure 53: Postpartum haemorrhage rate by BMI among spontaneous vaginal births NWH 2016 (excludes missing data)

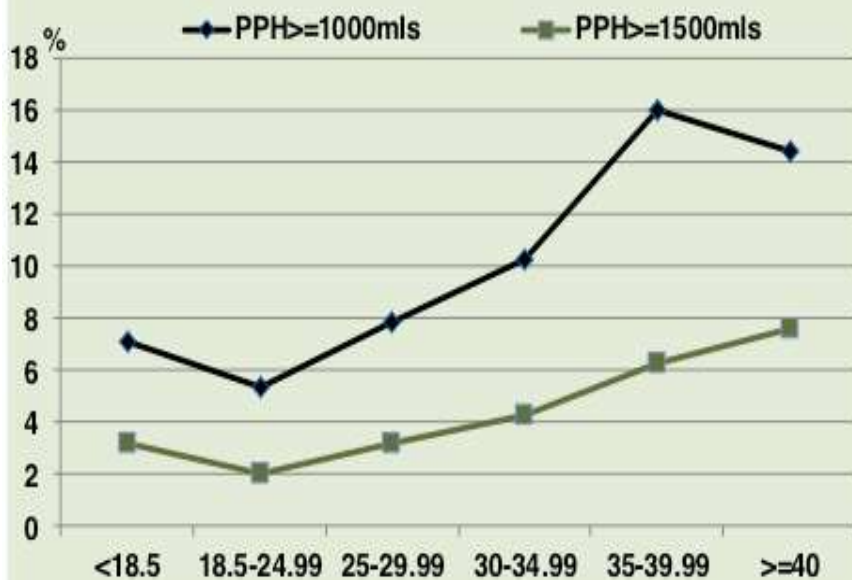
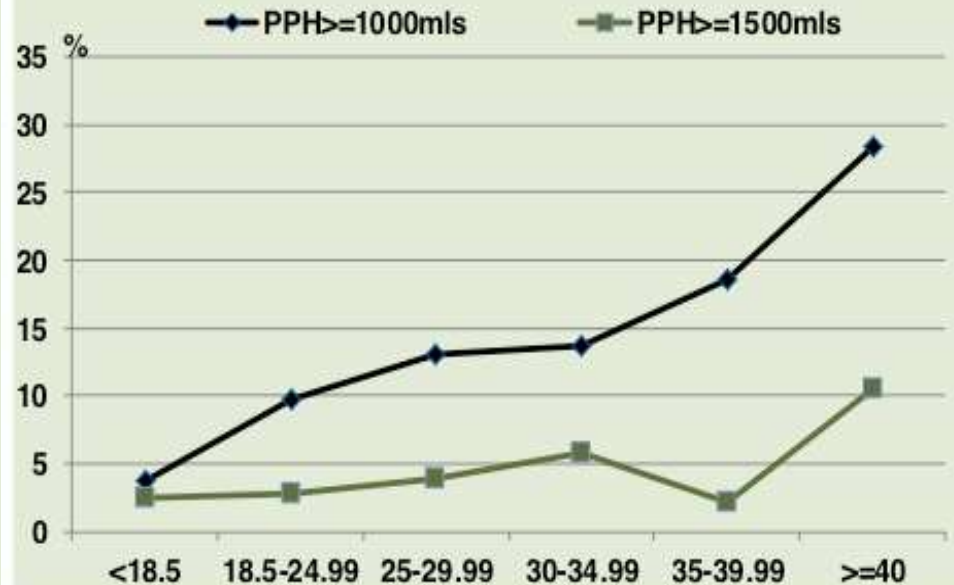
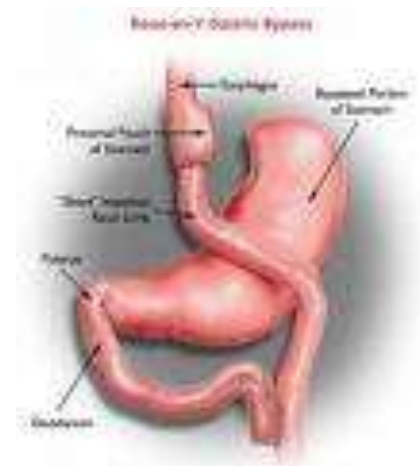


Figure 54: Postpartum haemorrhage rate by BMI among Caesarean sections NWH 2016 (excludes missing data)



Can we Ameliorate Risk Pre-pregnancy?

- Addressing modifiable risk factors
 - Smoking
 - Blood pressure
 - Type 2 diabetes
 - Folic acid- 5mg
 - Healthy nutrition
 - Physical activity
- Pre-pregnancy weight loss
- Selective use of gastric by pass procedures



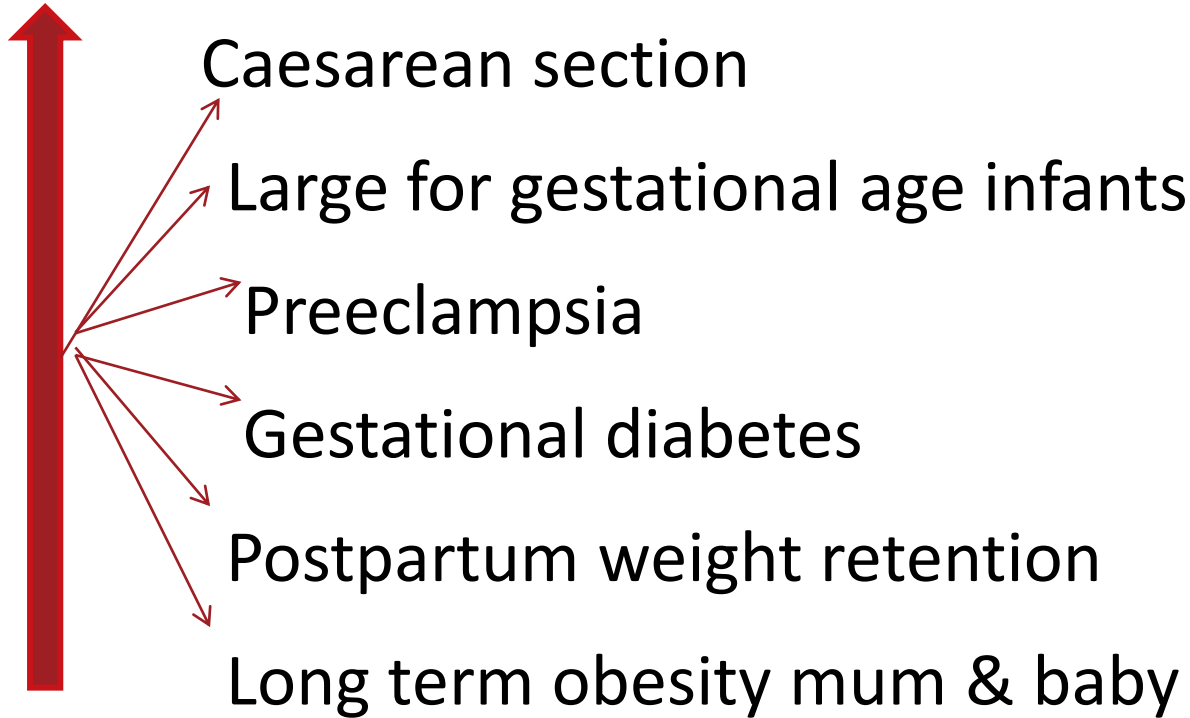
Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial

Paul Aveyard, Amanda Lewis, Sarah Tearne, Kathryn Hood, Anna Christian-Brown, Peymane Adab, Rachna Begh, Kate Jolly, Amanda Daley, Amanda Farley, Deborah Lycett, Alecia Nickless, Ly-Mee Yu, Lise Retat, Laura Webber, Laura Pimpin, Susan A Jebb

- RCT in primary care- brief advice re weight vs referral to a community wt loss program
- Participants -BMI >30
- Brief advice resulted in weight loss of 1kg at 12 mths and was acceptable
- **First time that brief advice shown to be effective and acceptable!**

**Lancet Oct 24
2016**

Excess Pregnancy Weight Gain & Pregnancy Complications



“Don’t supersize me”

Complications \approx to booking BMI

Women with normal BMI - \uparrow risk with \uparrow weight gain

Interventions In Pregnancy To Limit Gestational Weight Gain & Improve Pregnancy outcomes?

Does anything work?

Effect of diet and physical activity based interventions in pregnancy on gestational weight gain and pregnancy outcomes: meta-analysis of individual participant data from randomised trials

BMJ 2017;358:j3119

The International Weight Management in Pregnancy (i-WIP) Collaborative Group

- IPD of trials of diet, physical activity interventions in pregnancy
- 36 trials, n=12,526 women
- Intervention group:
 - ↓ GWG : 0.70 (-0.92 to -0.48) kg
 - ↓ LSCS: 0.91(0.83 to 0.99)
 - ↓ GDM : 0.76 (0.65 to 0.89) when IPD data combined with non-IPD
 - Physical activity studies also ↓ GDM & ↓ LSCS

Implications for Practice

- “Women of all BMI groups benefit from specific advice re diet and physical activity”
- Effects generalisable by BMI, parity, age, preexisting medical conditions
- Structured exercise programs safe in pregnancy

NZ MoH Pamphlet 2014

Healthy Weight Gain in Pregnancy

Gaining the right amount of weight during your pregnancy is one of the most important things you can do to support your health and the health of your baby.

Your pre-pregnancy/early pregnancy weight kg Your BMI is

It is recommended you gain between kg to kg in your pregnancy

This means you will ideally weigh between kg and kg at the end of your pregnancy

Track your weight gain on this table:

Week	Weight
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
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Aim to weigh yourself every four weeks. Ideally, you should weigh yourself on the same set of scales each time as each set of scales can be different. If you don't have scales, ask your midwife to weigh you.

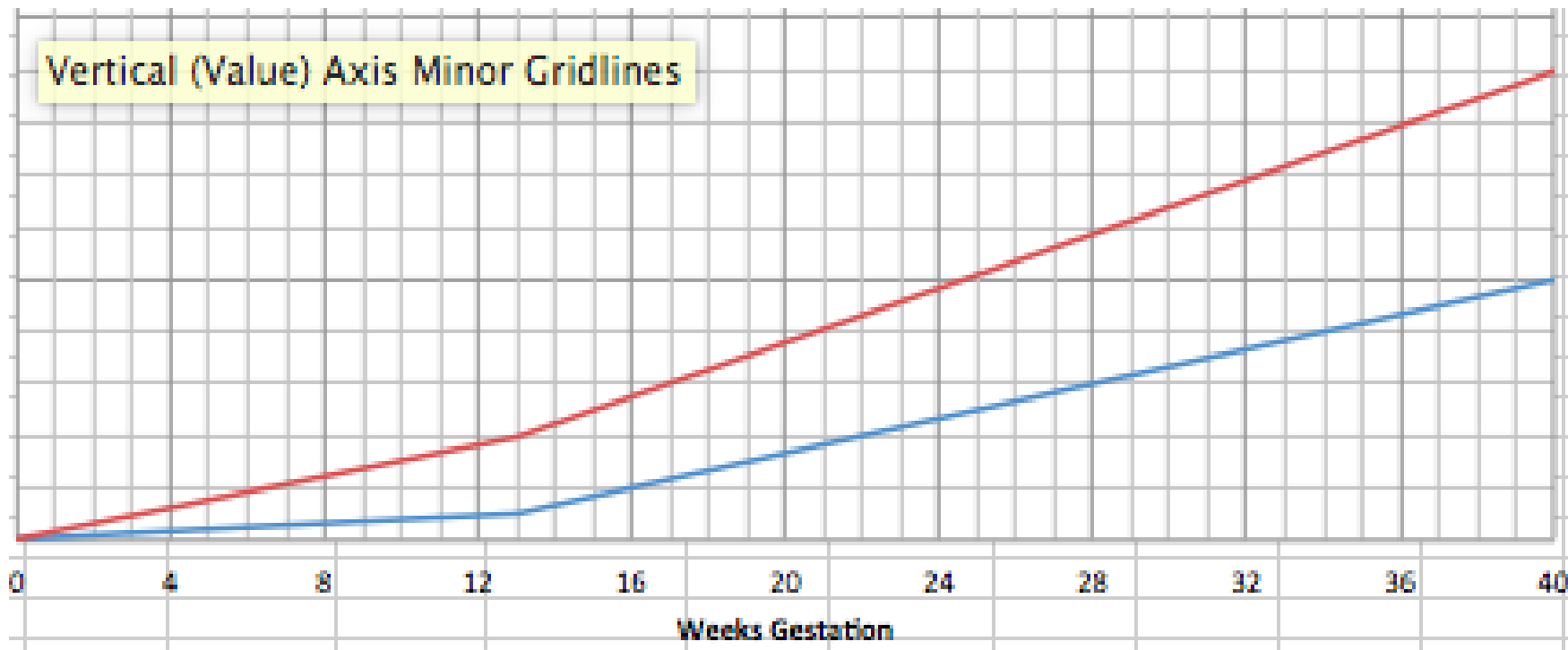
It is important you talk to your midwife about your weight gain throughout pregnancy.

The Ministry of Health acknowledges the work of Emma Jeffs (Dietitian) and Canterbury DHB in producing this material.



June 2014 HP 5899

GWG chart for BMI ≥ 30



Other Potential Interventions in Pregnancy

Probiotics

- HUMBA trial in obese women- recruitment complete



Metformin

- EMPOWaR -BMI >30: metformin 12-16 wks to birth n=449
 - no impact on BWT (Chiswick, Lancet 2015),
- Kings UK study- BMI >35, metformin 12-18 wks to birth n=450
 - ↓ GWG & preeclampsia no impact on BWT (Syngelaki NEJM 2016)

Myo-inositol

- 4 small trials, Cochrane review ↓ GDM but low quality
- NIPPER- prepregnancy RCT of nutritional supplement

Best practice care in pregnancy for women with high BMI ?

- Early pregnancy testing for T2D
- Prevention of preeclampsia in women with additional PE risk factors
 - Low dose aspirin **nocte**
 - Calcium 1-1.5g daily
- Dietary and physical activity advice
- Aim to achieve optimum weight gain Plot weight gain
- Test for GDM
- Growth scan(s) in third trimester
- Late pregnancy monitoring & further risk selection
 - Timing of birth
 - Place of birth
 - Mode of birth

Should IVF be available to women with BMI >32 ?

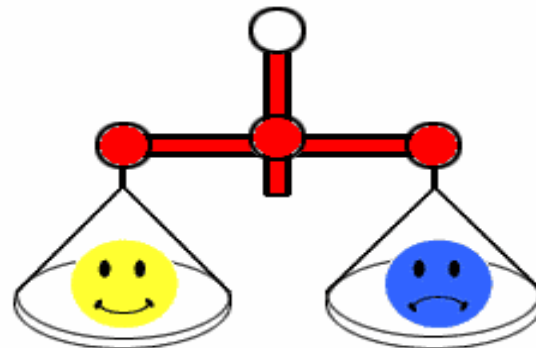


Yes:

- Reduced inequities in access to health care for Maori and Pacific women
- Right to have a child

No

- ↑ pregnancy complications
- ↑ health care costs
- Potential impact on population health



Unanswered Questions

- How common is infertility in women of Pacific and Maori ethnicity many of whom are in-eligible for publically funded IVF treatment?
- Do pregnancy outcomes differ in obese women who conceive with IVF compared to those who conceive naturally?





Obesity is a major public health issue in New Zealand.

Tackling obesity is the collective responsibility of all of society, including healthcare professionals, policy makers, educators, the food industry, parents, concerned individuals, community groups, NGOs and government.



1 in 9 NZ children are obese

2 in 10 are overweight

Obesity in pregnancy

INCREASED RISK

gestational diabetes
pre-eclampsia
C-section
stillbirth
fetal abnormalities





Outpatient Ballon vs. Inpatient Gel

 Oblige



SLEEP POSITION IN PREGNANCY STUDY

 GEMS

Gestational Diabetes Mellitus Study of Detection Thresholds for the health of mothers and babies

